

Freshwater Advisories Recap 2020



Lake Anna at Rt 522 August 22, 2020

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Margaret Smigo
Office of Environmental Health Services
Division of Shellfish Safety & Waterborne Hazards

Topics Overview

- Review “Working” Draft Freshwater HAB Recreational Advisory Guidance
- 2020 Freshwater HAB Investigation & Advisory Summary
- 2020 HAB Meetings & Efforts
- Draft Freshwater HAB Recreational Advisory Guidance – 2021
- What’s Next for the VA HAB Task Force - 2021

Freshwater HAB Recreational Advisory Guidance 2020

“Working” FW
Rec Guidance
Review

Applies to Recreational Advisories in Fresh and Brackish Waters

5,000 to <20,000 Potentially Toxigenic sp (PTOX)		> Local agency notification; initiate bi-weekly water sampling
<i>Microcystis</i> species	≥ 40,000 cells/ml*	= Issue swimming advisory
Total PTOX sp	≥ 100,000 cells/ml**	= Issue swimming advisory
Microcystin	≥ 8ug/L*	= Issue swimming advisory
Cylindrospermopsin	≥ 15ug/L*	= Issue swimming advisory
Blue-green algal scum or mats on the water surface		= Issue swimming advisory



WARNING

HARMFUL ALGAE PRESENT

PEOPLE AND ANIMALS SHOULD AVOID SWIMMING AND WADING UNTIL FURTHER NOTICE

EXPOSURE TO ALGAL TOXINS MAY CAUSE ILLNESS

Call your doctor or veterinarian if you or your animals have sudden or unexplained sickness or signs of poisoning.

While fish consumption is not affected by toxic algae, thoroughly cleaning the fish, discarding the carcass & guts, & washing hands & surfaces afterward with soapy water is advised.

Report algal blooms and illnesses to VDH hotline
888-238-6154

For more information:
<http://www.vdh.virginia.gov/environmental-epidemiology/harmful-algal-blooms.html>

Contact your local health department

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Hybrid Advisory Approach:

- PTOX cell densities and/or toxins > thresholds initiate a HAB advisory
- Assumes higher cell counts = greater probability of toxin production

*EPA 2019 Revised Recreational HAB Advisory Recommendations

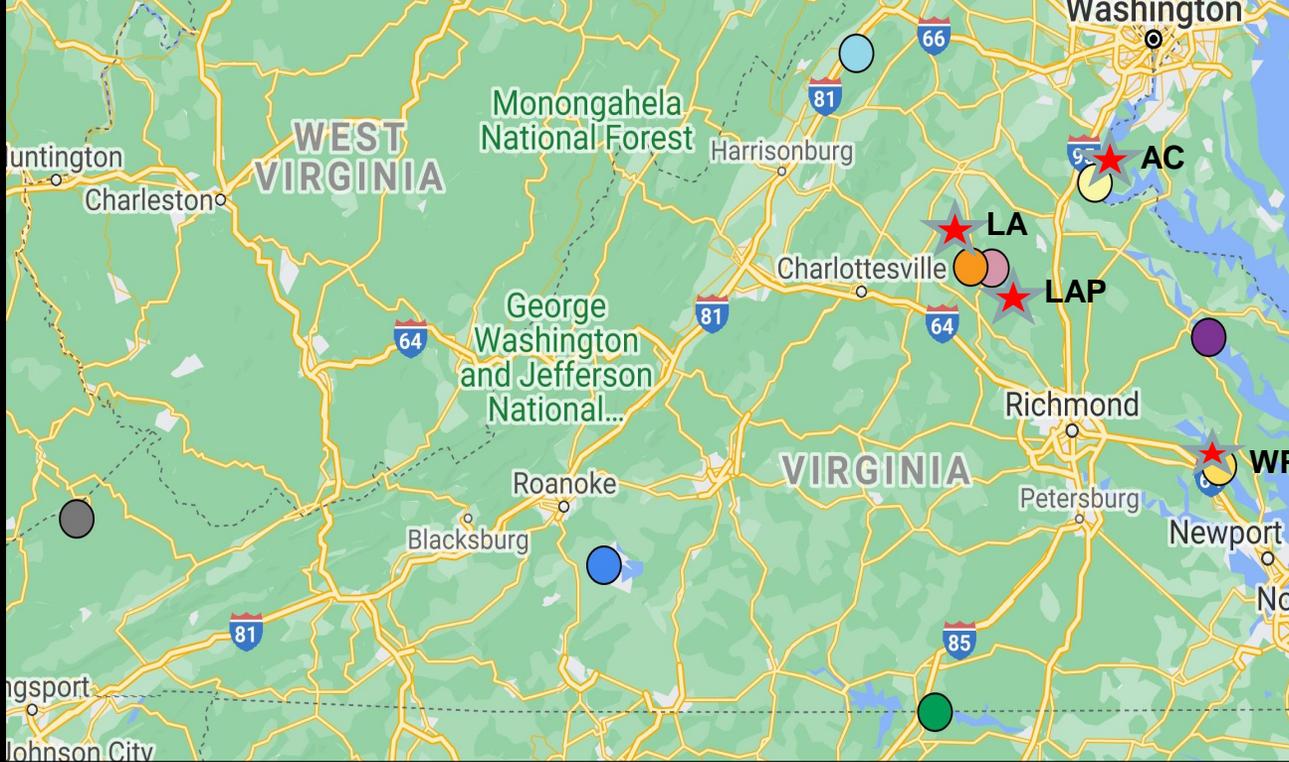
**WHO 2003 Recommendations

Advisories lifted: after 2 consecutive results below thresholds taken 10 days apart, both toxins and cell counts < thresholds; VDH may lift advisories with fewer results under certain circumstances

- Capacity question – investigate capacity of our freshwater lab to analyze Anatoxin-a and Saxitoxin in addition to Micro/Cylindro for all HAB investigation samples
- Human health advisory thresholds for neurotoxins

Freshwater HAB Investigation & Advisory Summary

2020 FW Investigation & Advisory Summary



4

Number of Virginia waterbodies that required advisories due to PTOX > 100,000 cells/ml

Number of Virginia waterbodies where cyanotoxins analyzed were > 1µg/L

0

#samples toxins detected > limit of detection:
 MCY = 57
 CYL = 2
 ATX = 30
 SAX = 22

Waterbodies Investigated (# sites)	June	July	Aug	Sept	Oct	Total # Samples Collected	Total # Days of Advisory
Aquia Creek - Widewater SP (1)		2	1			3	36
Flannagan Reservoir (8)		8				8	--
Lake Anna (10)	11	10	10	20	10	61	92
Lake Anna Pond - Lake Anna SP (2)		1		1	1	3	30
Lake Gaston (3)		3				3	--
Rappahannock River (6)			6*		6	6	--
Shenandoah River (6)		3		2	1	6	--
Smith Mountain Lake (1)			2			2	--
Woodstock Pond - York River SP (3)		3	6	6	6	21	49
Total # sites: 40						Total # Freshwater Samples: 113	--

AC
LA
LAP
WP

"Red" = Advisory
 # of samples collected within a month

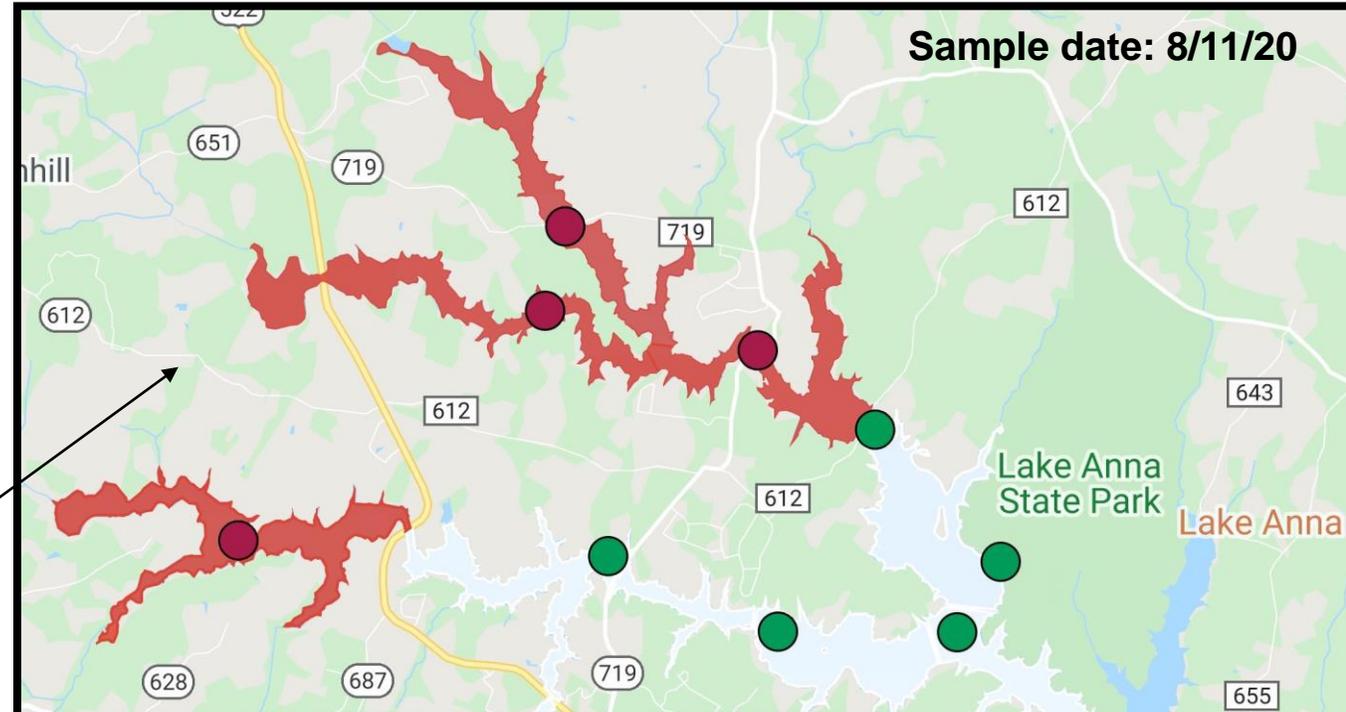
Lake Anna Advisories

Investigation &
Advisory
Summary – Lake
Anna

2020 Recreational Advisory – 92 days*
2019 Recreational Advisory – 94 days
2018 Recreational Advisory – 76 days
2017 Recreational Advisory – none

**monitoring began in mid-June 2020, vs. April 2019
and vs. Aug 2018*

- **No VDH Advisory Management changes from 2019 to 2020**
 - 10 sites above Rt. 208 monthly or every other week
- **Worst extent of advisories:** Upper/Middle Pamunkey Branch, Terry's Branch & Upper North Anna Branch
- **NO advisories at Lake Anna State Park**
- **NO advisories reported by Dominion Energy for the WHTF**
- **One "crowd sourced" scum report**



2020 Other Freshwater Investigation Highlights

Investigation & Advisory Summary - Other Highlights



2020 Virginia HAB Task Force Meetings & Efforts

Meetings & Efforts

Virginia Annual HAB Task Force Meeting
February 24 (Richmond, VA)

DEQ – LACA Stakeholder Partnership Meetings

HAB Coordination Meetings With VIMS/ODU/DEQ

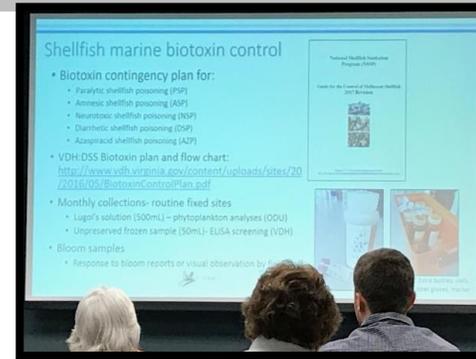
Simplified HAB Map Legend

Revised HAB online submittal form

Draft *Lyngbya (Microseira) wollei* outreach document (draft)

- Coordination with NC partners for Lake Gaston

Draft Freshwater HAB Advisory Guidance



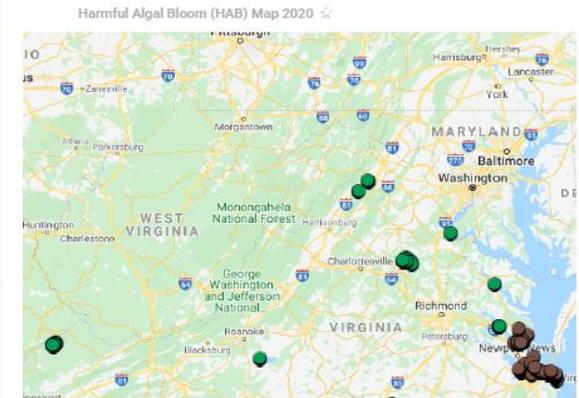
HARMFUL ALGAL BLOOM ONLINE REPORT FORM

Please do not report health complaints using this form. Please contact the HAB Hotline 888-238-6154, to report suspected illness due to HAB exposure. Please call the Virginia Emergency Operations Center (VEOC) at 1-800-468-8892 immediately to report fish kills or other dead animals in or near the water.

Is your report concerning a public or private body of water? *

Public

The HAB Task Force does not currently have the resources to respond to reports of possible algae blooms in private bodies of water. Please contact a private consultant for assistance with private waterbodies. The Department of Game and Inland Fisheries maintains a consultant list for such services at: <https://www.dgif.virginia.gov/fishing/private-pond-management/private-consultants/>



Map Legend: Click on icons (colored dots) or red hatch-marked areas (areas under a swimming advisory) within the map above for details on sampling and advisory information.

Green dot: No Harmful Algal Bloom (HAB) detected or harmful algae is present below swimming advisory thresholds – while there may not be an advisory based on sampling results, environmental conditions may change quickly. If water is discolored, has an odor, or if there are dead or stressed animals present report the bloom using the online HAB form and avoid contact of people and animals with the water.

Red dot: Harmful Algal Bloom (HAB) Advisory in Effect - humans and pets should avoid contact with these waterbodies.

Brown dot: Ongoing Bloom – No HAB Advisory in Effect – algae species not known to be harmful to humans or pets but may be harmful to aquatic life such as fish.

Blue dot: Crowd-Sourced Reports - Lake Anna Only - public reports of visible blooms (scum, discolored water) in a waterbody known to have harmful blooms or which has an active advisory in place. These reports are not verified by sampling or

Freshwater HAB Recreational Advisory Guidance Draft 2021

FW HAB Rec
Advisory
Guidance - Draft

Metric	Concentration
<i>Microcystis</i> species	≥40,000 (total cells/mL)
total potentially toxicogenic (PTOX) cyanobacteria taxa*	≥100,000 (total cells/mL)
microcystin toxin	≥8 µg/L
cylindrospermopsin toxin	≥15 µg/L
anatoxin-a toxin	≥8 µg/L
saxitoxin toxin	≥4 µg/L

**PTOX taxa list is subject to change based on most recent research and is available upon request.*

Due to limited resources and the lack of a freshwater HAB monitoring program, VDH does not currently recommend including an estimate of percent area covered by benthic mats. Rather, VDH may continue to provide outreach and education to the public regarding potential benthic mat risks through the Healthy and Safe Swimming Campaign, social media tweets, focused news articles on the topic of benthic algae and how to avoid it, and by raising awareness through organizations where benthic mats are found.

- Appendix B: List of regional potentially toxicogenic (PTOX) cyanobacteria taxa based on literature reviews, other state plans, and discussions with regional partners.
- *Anabaena*
 - *Anabaenopsis*
 - *Aphanizomenon*
 - *Chrysochloris*
 - *Cuspidothrix*
 - *Dolichospermum*
 - *Lyngbya*
 - *Microcystis*
 - *Microseira*
 - *Nodularia*
 - *Nostoc*
 - *Oscillatoria*
 - *Phormidium*
 - *Planktolyngbya*
 - *Planktothrix*
 - *Raphidiopsis*
 - *Sphaerospermopsis*
 - *Woronichinia*
- The PTOX taxa list will be reviewed at least annually or more frequently as needed by HAB Task Force staff. References include: California 2017, D'Anglada et al. 2015, EPA 2019, GreenWater 2020, Ohio 2015, Oregon 2019, WHO 2003.

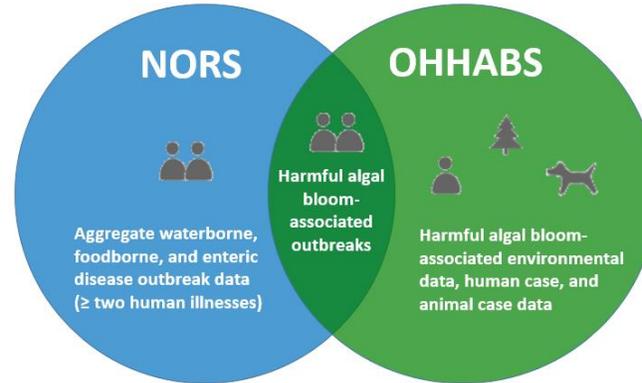
- Saxitoxin and Anatoxin-a thresholds derived from epi-studies evaluating exposure and toxicity data.
- Benthic mat/solid scum – material collections; verbiage under review by DEQ leadership
- Benthic Cyanobacteria background document - appendix B

What's Next?

2021 HAB Season

Next Steps 2021

- Adopt Freshwater HAB Rec Advisory Guidance
 - June
- Internal SOP development
 - Advisory management
 - June
 - OHHABS data entry/submittal
 - November
- Continue collaboration with partners
 - Protocol for cyano solids/mat processing method
 - Develop public health messaging for exposures to solids/mat material
 - June
 - Lake Anna - DEQ & Stakeholders



Thank you for Swimming Safely (6 feet away – COVIDsafe summer)

COVID Summer
2020

